

IN THE CLAIMS

1. A radio power-output amplifier, comprising:

5 a first totem-pole arrangement of power output transistors for pulling a first antenna output connection between ground and a battery voltage level;

a second totem-pole arrangement of power output transistors for pulling a second antenna output connection between ground and said battery voltage level;

10 a buffer for driving the first totem-pole arrangement of power output transistors according to a radio-carrier input signal; and

15 an inverting buffer for driving the second totem-pole arrangement of power output transistors opposite to said radio-carrier input signal.

2. The radio power-output amplifier of claim 1, further comprising:

20 a D-flip-flop connected to receive input data and for modulating said radio-carrier input signal.

3. The radio power-output amplifier of claim 1, further comprising:

25 a balanced transmission line connected at a first end to said first and second antenna output connections; and

a transmitting antenna connected to a second end of the balanced transmission line and providing for radio emissions of a modulated radio carrier signal.

4. A method for increasing the radio power output of a transmitter, the method comprising the steps of:

differentially driving a balanced antenna from two pairs of totem-pole transistors;

5 driving each of the two pairs of totem-pole transistors oppositely; and

taking a radio transmitter output from each of the junctions of the two pairs of totem-pole transistors.

10 5. A directional drillstring system, comprising:

a drillstring providing for underground boring and further providing a radio communication path;

a drillhead mounted at a distal end of the drillstring and providing for drilling;

15 a radio transceiver associated with the drillhead and providing for radio transmissions of drillhead activity and underground geology data;

wherein, the radio transceiver includes a radio power-output amplifier, comprising:

20 a first totem-pole arrangement of power output transistors for pulling a first antenna output connection between ground and a battery voltage level;

25 a second totem-pole arrangement of power output transistors for pulling a second antenna output connection between ground and said battery voltage level;

a buffer for driving the first totem-pole arrangement of power output transistors according to a radio-carrier input signal; and

30 an inverting buffer for driving the second totem-pole arrangement of power output transistors opposite to said radio-carrier input signal.

6. The directional drillstring system of claim 5, wherein the radio transceiver includes said radio transmitter further having:

5 a D-flip-flop connected to receive input data and for modulating said radio-carrier input signal;

a balanced transmission line connected at a first end to said first and second antenna output connections; and

10 a transmitting antenna connected to a second end of the balanced transmission line and providing for radio emissions of a modulated radio carrier signal.

7. A radio transmitter, comprising:

15 means for differentially driving a balanced antenna from two pairs of totem-pole transistors;

means for driving each of the two pairs of totem-pole transistors oppositely; and

20 means for taking a radio transmitter output from each of the junctions of the two pairs of totem-pole transistors.